

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

Serial No.: 10/581,353

Filed: May 31, 2006

For: **TREATMENT UNIT FOR THE WET-CHEMICAL ELECTROLYTIC
TREATMENT OF FLAT WORKPIECES**

Inventors: Uwe Hauf, Henry Kunze, and Ferdinand Wiener

Examiner: Sylvia MacArthur

Art Unit: 1792

Atty Doc. No.: 084-06

DECLARATION UNDER 37 C.F.R. 1.132

1. I, Uwe Hauf am one of the inventors of the present invention. I am with Atotech Deutschland GmbH, the Assignee of this patent application.
2. I have had 23 years of experience with wet chemical and electrolytic treatment of flat work pieces, included printed circuit boards and printed circuit film.
3. My educational background and experience is summarized in my curriculum vitae, copy attached as Exhibit A.
4. Because of my long and in-depth experience in the field of wet chemical and electrolytic treatment of flat work pieces, including in-depth familiarity with equipment in this field, I am considered to have significant expertise in this field. Further, because of the various management positions I have been in charge of I have a comprehensive competence in terms of business activities worldwide in this field.
5. I am very familiar with the present patent application, including its claims, and with the Henington et al European Patent Application EP 0959153A2 that has been used as a primary rejecting reference in this case. I am also familiar with the Shipley Company LLC, the assignee of the Henington et al document.
6. All of the claims of the present patent application require several significant features that have no counterpart in the disclosure of the Henington et al document.

7. All of the claims of the present patent application require a treatment unit comprising at least one module system that includes a treatment device (with or without at least one conveying member) and that comprises an insertion element fitted into recesses (21) of carrier elements (4, 5).

Henington et al has treatment devices 16, but (A) these treatment devices have no insertion elements that carry or secure them, and (B) Henington et al has no disclosure how these treatment devices are mounted in the apparatus, and (C) Henington et al has no disclosure that any treatment device 16 fits into any recess in the carrier elements of Henington et al.

8. All of the claims of the present application require, additionally, that the at least one module system that includes treatment device(s) be flow nozzles, jet nozzles, fan nozzles, ultrasonic transducers and/or insoluble anodes, and that the claims comprise insertion elements fitted into recesses of the carrier elements. Again, Henington et al has no disclosure that its treatment device fits into any recess of its carrier elements or even that its treatment devices 16 are in any respect carried by insertion elements.

9. The elements 20A, 20B and 22 (Fig.1, 5A, 5B, 5C) of Henington et al are not treatment devices and certainly are not flow nozzles, jet nozzles, fan nozzles, ultrasonic transducers and/or insoluble nozzles; they are rollers (20A, 20B) or covering apparatus 22.

10. Henington et al does not disclose in any respect that the fluid delivery apparatus 16, 18, Figs. 1, 3A, 3B, 3C, 3D, 3E, 4A and 4B could be or include insertion elements, or that any insertion element would carry or secure a treatment device. Henington et al's disclosure is silent as to how the fluid delivery apparatus 16 are mounted in Henington's electroplating apparatus.

11. In the present invention, there is a non-obvious advantage for the construction of the treatment units and the case of retrofitting the treatment units in that their treatment devices can be easily exchanged without it being necessary to re-construct or modify the carrier elements or carrier walls. This results in shorter delivery times and higher flexibility for future applications of the treatment units. The present invention permits ready utilization of different treatment devices without requiring major expense and without having the carrier elements needing to be replaced each time a change has to be performed in the treatment unit. This is different than what would appear to be necessary from the Henington et al disclosure, in that the Henington et al apparatus would seem to necessarily require reconstruction every time a unit is to be re-adapted from, for example, handling a thicker material to handling a thinner, more flexible material. Such reconstruction would seem to result in a delay in the manufacturing process and impose additional

expense for reconstruction of the treatment unit and in the process. In this regard, relative to Henington et al, the present invention presents a treatment unit which produces a new and unexpected result.

12. With the present invention, it is only necessary that the insertion elements be selected for whatever specific type of treatment is desired for the workpiece. This invention therefore makes possible a standardization of the mounting of different treatment units that offers great flexibility in construction, manufacturing and retrofitting of the treatment devices, because the treatment devices carried by insertion elements can readily be replaced depending upon which treatment features are desired, depending upon the workpieces that are being treated.

13.. Furthermore, a skilled person knowing about the insertion elements of Henington et al would not have contemplated having the treatment devices of the units be carried or secured by insertion elements. This is because, insertion elements are used for carrying transport elements or conveying members like rollers with axles, since by turning of the axles in their bearings the bearings will be worn out after some time. By using the insertion elements as the bearings instead of the carrier elements, only the insertion elements have to be replaced instead of the complete carrier elements. But this benefit will not be achieved if treatment devices were carried or secured by the insertion elements. This is because carrying of the treatment devices does not cause any wear and tear since they do not rotate. So before the invention was made there was no motivation or hint to carry or secure the treatment devices by insertion elements as shown by the invention..

14. Conveyorized treatment units for the wet-chemical treatment of flat work pieces are sold by my company and its affiliates under the trade name UNIPLATE. Most of these units, i.e., more than 90 % of all UNIPLATE units sold since 2004 have the construction of the invention comprising treatment devices which are carried or secured by insertion elements which in turn are held by carrier elements.

15. I frequently received a very positive feedback from our customers for the short delivery time and great flexibility, especially for future applications, of our UNIPLATE treatment equipment based on this invention. Our customers commended the unique construction of our UNIPLATE treatment units having the construction of the invention because of the benefit of easy adaptation if the unit is to be adapted from one processing condition to another so that short idle times and hence a much higher throughput of the units is achieved than with conventional units like that of the Henington et al. apparatus.

Henington et al. apparatus.

16. The unique structure of the UNIPLATE treatment unit of the invention sold by my company has yielded very large commercial success, as is shown in a turnover sheet vs. time sheet, copy enclosed as Exhibit B. This sheet shows the worldwide sales turnover in a period from 2001 to 2009. The turnover in early 2004, as shown in Exhibit B, was set to 200%, which was when sales began of UNIPLATE units having this invention in them. Thereafter, apart from a decline in 2009 due to the worldwide economic downturn, the turnover steadily increased to about 540% relative to 2001. This rise in turnover is parallel to the commercial use of the invention in UNIPLATE treatment units since its launch in 2004 until today. There was no price reduction for the treatment units in the period 2004-2008, relative to the pre-2004 period that accounts for the increase in sales from 2004-2008. Instead, there is a strong indication of the relation between the successful sales of the treatment units and the incorporation of this new invention and shows its great acceptance by our customers.

17. Accordingly, in my opinion, based upon my experience in the field to which both Henington et al and the present invention relate, and based upon the extraordinary commercial acceptance of this invention by customers in this field, which extraordinary acceptance is because of those features of this invention discussed above in numbered paragraphs 7 and 8, the present invention is a non-obvious improvement over the prior art, most particularly the Hennington et al prior art.

18. While under German law there is a procedure for remunerating inventors for patentable inventions, I make this Declaration, not because of that procedure, but based upon the facts set forth in the paragraphs hereof, as I know them to be.

19. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

May 12th 2010
Date


Signature 
Name: Uwe Hauf
Title: Vice President Electronics

EXHIBIT A



Company : Atotech Deutschland GmbH

Name : Uwe Hauf

Current Function : Vice President Electronics

Sex : Male

Date of Birth : November 29th , 1958

Nationality: German

Languages: German (mother language)
English (fluent)
French (basics)

Date of Employment : February, 1987

Marital Status : Married, 4 children

07/2005 – today

Vice President Electronics

- * Responsibility for worldwide business strategy
- * Definition of development targets and guidelines
- * Responsibility for 70 MEUR Equipment business and development
- * Turnover: 380 MEUR, thereof equipment business 90 MEUR; RO: 100MEUR; 65 MEUR structural costs, thereof 20 MEUR R&D
- * 6 major business units
- * 370 employees; 3 global R&D centers (Germany, China, Japan) and 12 Technical Centres around the world
- * 33 affiliates in as many countries in Europe, America, Far East

07/2003 – 06/2005

**Business Manager, Systems
Atotech Deutschland GmbH, Feucht / Germany**

- * Responsibility for Equipment Business of 70 MEUR
- * Structural Costs: 10.5 MEUR, thereof 3.5 MEUR R&D
- * 75 employees in Germany and 4 direct reports in USA
- * Additional responsibility for up to 250 external personal
- * Direct reporting line to Vice President Electronics

09/2001 – 06/2003

**Systems Development & Sales Manager
Atotech Deutschland GmbH, Feucht / Germany**

- * Responsibility for system sales and sales support (50 MEUR)
- * Initiation and Coordination of all System Development activities
- * Structural Costs: 5,0 MEUR, incl. Development Budget 3,5 MEUR
- * 18 employees in Germany and 4 direct reports in USA

08/1997 – 08/2001

**R&D Manager for Surface Treatment Technology
Atotech USA Corp., State College, PA / USA**

- * Responsibility for all R&D activities of the Business Technology Team
- * Heading of a group of 12 Development Chemists
- * Development Budget: 1,5 M\$ (US)
- * Responsibility for novel equipment development for surface treatment
- * Responsibility for the establishment of a new Technology Centre

03/1994 - 07/1997

**Product Marketing Manager for PTH products
Atotech Deutschland GmbH, Stuttgart / Germany**

- * Responsibility for all Regional PTH Sales & Marketing Activities
- * Introduction of new PTH products to the German Region
- * Coordination of Implementation projects for new products
- * Training of local staff of new processes

02/1993 – 02/1994

**Development Manager
Atotech Deutschland GmbH, Berlin / Germany**

- * Head of Task Force: ICD Defects at IBM
- * Revision of conventional PTH chemistry
- * Development of new cleaner systems for PTH

11/1991 – 01/1993

**Project Manager Direct Plating
Schering AG, Stuttgart / Germany**

- * Head of Implementation Team
- * Improvement of polymer-based DP systems
- * Development of acidic permanganate systems
- * Customer projects: Loewe Opta / Blaupunkt

10/1988 – 10/1991

**Project Engineer for Horizontal PTH and Desmear Systems
Schering AG, Stuttgart / Germany**

- * Development & Improvement of Horizontal System Technology
- * Development & Test of a recycling system for Permanganate Solutions
- * Improvement of chemistry for horizontal application
- * 18 customer projects in Europe and Japan

02/1987 – 09/1988

**Technical Service EngineerProject
Schering AG, Stuttgart / Germany**

- * Service responsibility for 6 key customers
- * Member of Project Team for horizontal Equipment
- * Specialist for horizontal PTH and related processes

Education

03/1981 – 09/ 1986	Fachhochschule Aalen (Polytechnic) Graduation as Dipl. Engineer (FH) for Material Science and Plating Thesis: "Plating out of Salt Melts"
03/1984 – 09/1984	Practical semester at Daimler-Benz AG in Mannheim / Germany
09/1982 – 02/1983	Practical semester at Runne-Centrifuges in Heidelberg / Germany
08/1967 – 08/1977	High School, Helmholtz-Gymnasium Heidelberg / Germany 08/77 College Entrance Qualification (Polytechnic)
03/1964 – 07/1967	Elementary School Geschwister-Scholl School Heidelberg / Germany

EXHIBIT B

Sales - Uniplate 2001 - 2009

as % - 2004 = 200 %

